

REMARKS

Applicants appreciate the Examiner's thorough consideration provided to the present application. Claims 1-9 and 18-20 are currently pending in the instant application. Claims 1, 5-7 and 18 have been amended. Claims 1 and 18 are independent. Reconsideration of the present application is earnestly solicited.

Claim Rejections Under 35 U.S.C. § 102

Claims 1 and 18 are rejected under 35 U.S.C. § 102(b) as being anticipated by FR 2693246 to Berndt et al. This rejection is respectfully traversed.

In light of the foregoing amendment to the claims, Applicants submit that the rejections based upon the Berndt et al. reference (FR 2693246) have been obviated and/or rendered moot. Applicants respectfully submit that the prior art of record fails to teach or suggest each and every element of the unique combination of elements of the claimed invention. Accordingly, these rejections should be withdrawn.

With respect to claim 1, Berndt et al. fails to teach or suggest the combination of elements of the claimed invention, including the limitation(s) of "a friction disk for a brake assembly comprising an annular structural core having *at least one sinusoidally-shaped mounting surface; and at least one*

frictional lining disk having a sinusoidally-shaped mounting surface and a relatively, flat wear surface, said mounting surface of each frictional lining disk matingly engaging said mounting surface of said structural core.” (emphasis added)

With respect to claim 18, Berndt et al. fails to teach or suggest the combination of elements of the claimed invention, including the limitation(s) of “a friction disk for a brake assembly comprising. . . *a first frictional lining disk having a sinusoidally-shaped mounting surface and a relatively, flat wear surface, said mounting surface of said first frictional lining disk matingly and directly engaging said first mounting surface of said structural core; and a second frictional lining disk having a sinusoidally-shaped mounting surface and a relatively, flat wear surface, said mounting surface of said second frictional lining disk matingly and directly engaging said second mounting surface of said structural core.” (emphasis added)* Accordingly, these rejections should be withdrawn.

The Examiner has referred to a low cost, lightweight bicycle disk as an alleged basis for rejecting the friction disk for a brake assembly of the claimed invention. In addition, the Examiner has alleged that Berndt somehow teaches or suggests first, or even second friction lining “elements” (the Examiner has relied upon the “friction coating 5” of Berndt as the alleged friction lining elements). This interpretation is respectfully traversed.

Specifically, the bicycle brake disc of Berndt clearly does not include friction lining elements as alleged by the Examiner. Instead, a friction coating, e.g., sprayed or applied by galvanization, provides a wear surface for the bicycle disk of Berndt. The alleged sinusoidal surfaces of Berndt refer to the corrugated surface of the disc (element 1 shown in FIG. 3A), but the coating (element 5) does not have any sinusoidal mounting surface since it is merely a friction coating, e.g., not a friction lining element.

Without conceding the propriety of the Examiner's rejection, but merely to timely advance the prosecution of the present application, Applicants have amended the term friction lining element to friction lining disk to clarify the invention for the benefit of the Examiner. The Examiner will note that in the present application, the friction lining disks 30 are purposefully manufactured to be utilized with a reusable structural core, e.g., element 40 in FIG. 4. Accordingly, the friction lining disks, i.e., actual elements, plates or discs, may be attached to the structural core, removed, replaced and/or even refurbished. Although these disks 30 may include a coating, the friction lining disks of the claimed invention are clearly different than the friction coating (element 5) of the Berndt reference that is solely used to supply the wear surface of the brake disc (element 1).

The claimed invention provides a secure, reliable way of mounting replaceable frictional elements that is not particularly labor intensive and with

fewer elements than those shown in the prior art of record. Since the frictional elements and the annular structural core are specifically shaped to mate with one another, no intermediate layer(s) is/are required therebetween. In light of the numerous patentable distinctions between the claimed invention and the prior art of record, this rejection should be withdrawn.

Claim Rejections Under 35 U.S.C. § 103

Claims 2, 5, 7-8 and 19 are rejected under 35 U.S.C. § 103(a) as being unpatentable over FR 2693246 (Berndt et al.) in view of Pigford (U.S. Patent No. 4,982,818). Claim 6 is rejected under 35 U.S.C. § 103(a) as being unpatentable over FR 2693246 (Berndt et al.) in view of Cook et al. (U.S. Patent No. 3,800,392). Claim 9 is rejected under 35 U.S.C. § 103(a) as being unpatentable over Berndt et al. in view of Pigford, and further in view of Hill et al. (U.S. Patent No. 4,011,055). These rejections are respectfully traversed.

Applicants respectfully submit that the prior art of record fails to teach or suggest each and every element of the combination of elements of the claimed invention. As described in greater detail hereinabove, Berndt et al. fails to teach or suggest each and every element of even the independent claims. The claimed invention provides a unique brake assembly that includes a uniquely shaped structural core and removable friction lining disk(s) not

shown in the prior art of record. Accordingly, the rejections based upon the Berndt et al. reference are improper and should be withdrawn.

Although the Cook et al. reference is directed toward a brake disk assembly having carbon or graphite removable wear faces, this brake assembly is unrelated to the bicycle disk of Berndt et al. Further, the Examiner has not identified any reason as to why one of ordinary skill in the art would modify the bicycle disk of Berndt et al., e.g., having only a friction coating (element 5), to include removable wear disks. Accordingly, this rejection should be withdrawn.

With respect to the Pigford reference, Applicants submit that the Examiner has not identified any reason why one of ordinary skill in the art would add carbon-carbon core and/or friction lining disks comprised of carbon to the bicycle disk of Berndt et al. Further, since Berndt et al. does not even rely upon friction lining disks, but instead relies solely upon a friction coating, one of ordinary skill in the art would not have been motivated to even attempt to modify the Berndt et al. brake disc to include the unique frictional lining disks of the claimed invention.

In accordance with the above discussion of the patents relied upon by the Examiner, Applicants respectfully submit that these documents, either in combination together or standing alone, fail to teach or suggest the invention as is set forth by the claims of the instant application.

Accordingly, reconsideration and withdrawal of the claim rejection are respectfully requested. Moreover, the Applicants respectfully submit that the instant application is in a condition for allowance.

As to the dependent claims, Applicants respectfully submit that these claims are allowable due to their dependence upon an allowable independent claim, as well as for additional limitations provided by these claims.

CONCLUSION

Since the remaining patents cited by the Examiner have not been utilized to reject the claims, but rather to merely show the state-of-the-art, no further comments are necessary with respect thereto.

Attached hereto is a marked-up version of the changes made to the application by this Amendment.

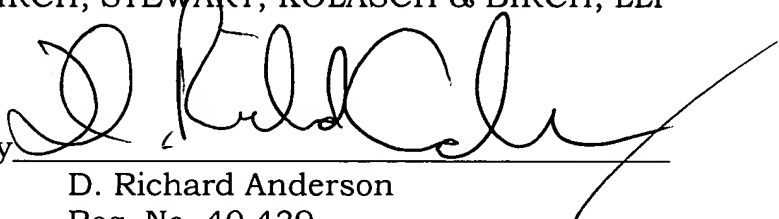
In the event there are any matters remaining in this application, the Examiner is invited to contact Matthew T. Shanley, Registration No. 47,074 at (703) 205-8000 in the Washington, D.C. area.

If necessary, the Commissioner is hereby authorized in this, concurrent, and future replies, to charge payment or credit any overpayment to Deposit Account No. 02-2448 for any additional fees required under 37 C.F.R. §§1.16 or 1.17; particularly, extension of time fees.

Respectfully submitted,

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Attachment: Version with Markings to Show Changes Made

VERSION WITH MARKINGS TO SHOW CHANGES MADE

IN THE CLAIMS:

The claims have been amended as follows:

1. (Amended) A friction disk for a brake assembly comprising:
an annular structural core having at least one sinusoidally-shaped mounting surface; and
at least one frictional lining [element] disk having a sinusoidally-shaped mounting surface and a relatively, flat wear surface, said mounting surface of each frictional lining [element] disk matingly engaging said mounting surface of said structural core.
5. (Amended) The friction disk according to claim 1, wherein each friction lining [element] disk is formed from friction optimized carbon-carbon composite.
6. (Amended) The friction disk according to claim 1, further comprising at least one mechanical fastener securing each friction lining [element] disk to said structural core.

7. (Amended) The friction disk according to claim 2, wherein each friction lining [element] disk is formed from friction-optimized carbon-carbon composite.

18. (Amended) A friction disk for a brake assembly comprising:

an annular structural core having a first sinusoidally-shaped mounting surface and a second sinusoidally-shaped mounting surface;

a first frictional lining disk [element] having a sinusoidally-shaped mounting surface and a relatively, flat wear surface, said mounting surface of said first frictional lining [element] disk matingly and directly engaging said first mounting surface of said structural core; and

a second frictional lining [element] disk having a sinusoidally-shaped mounting surface and a relatively, flat wear surface, said mounting surface of said second frictional lining [element] disk matingly and directly engaging said second mounting surface of said structural core.